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ABSTRACT

The literature review of continuing education in dentistry surveys 92 journal articles, books, conference reports and proceedings, and other publications published between 1960 and 1970. The review is divided into the following sections: prologue, which surveys the health professions, and new directions and limitations within them; the profession and continuing education, which examines dentist composition and distribution and concern for continuing education; participation in continuing education, which discusses characteristics of participants and their reasons for attending or not; program organization and administration, which examines sponsors of programs, program administration, some sample programs, and recurring issues and trends; summary, which synthesizes the literature on dentistry; and epilogue, which summarizes participation, programs, and research for the four health professions of nursing, medicine, pharmacy, and dentistry; and references. (JR)

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CONTINUING EDUCATION IN DENTISTRY

A Review of North American Literature 1960-1970

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W.K. KELLOGG PROJECT REPORT #5

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University of British Columbia
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W. K. KELLOGG FOUNDATION PROJECT REPORTS

No. 1 A Survey of the Need for Programs to Prepare Members of The Health Professions as Specialists in Continuing Education.

No. 2 Proceedings of a Conference on Inter Professional Continuing Education in the Health Sciences.

No. 3 Continuing Education in Medicine: A Review of North American Literature 1960 - 1970.

No. 4 Continuing Education in Nursing: A Review of North American Literature 1960 - 1970.

No. 5 Continuing Education in Dentistry: A Review of North American Literature 1960 - 1970.

No. 6 Continuing Education in Pharmacy: A Review of North American Literature 1960 - 1970.

INTRODUCTION

"As we examined the hundreds of briefs with their thousands of recommendations we were impressed with the fact that the field of health services illustrates, perhaps better than any other, the paradox of our age, which is, of course, the enormous gap between our scientific knowledge and skills on the one hand, and our organizational and financial arrangements to apply them to the needs of men, on the other.

"What the Commission recommends is that in Canada this gap be closed. That as a nation we now take the necessary legislative, organizational and financial decisions to make all the fruits of the health sciences available to all our residents without hindrance of any kind. All our recommendations are directed toward this objective.

"There can be no greater challenge to a free society of free men."

The foregoing quotation from the Report of the Royal Commission on Health Services in Canada (1964) presented a clear call to governments, teaching centres and health professionals themselves to insure that knowledge of health matters is made generally available as quickly as possible. Obviously such dissemination of knowledge must begin within the professions themselves. The review of Continuing Education in Dentistry contained herein demonstrates the degree to which that profession has become involved in this task. That there is a lack of consistency between the professions in the degree of effort which has been put into Continuing Education is not surprising. Perhaps the production of this survey and its companion reviews will stimulate increased activity among the professional groups in which activity has been limited.

John F. McCreary, M.D.

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The authors are grateful to the many people who have assisted in the preparation of this review. Special thanks are due to Miss Jane Corcoran for preparing the manuscript for the press.

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Vancouver, B.C.
July, 1972.

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CHAPTER 1

PROLOGUE

One of the most conspicuous and indeed alarming features of modern life is the rapid growth, proliferation, and diffusion of knowledge in every area of human endeavour. This is having an impact upon individuals and social institutions more profound than one can easily conceive or readily accept. It is producing changes that erode cherished myths about education which destroys personal and institutional security.

Individuals can no longer enjoy the security that is based on levels of educational attainment for new knowledge quickly makes past learning obsolete. The higher the original level of educational achievement, the more quickly obsolescence occurs; consequently, the several professions are more significantly threatened by change. At the same time, the accepted roles of social institutions are undermined. As new knowledge permeates all segments of society it alters the function and purpose of each institution in its relationship to others and to society in general. The firmly entrenched institutions are most threatened since their security is based on traditional responses to problems which new knowledge has made obsolete.

To survive in a changing world, both individuals and institutions must continue to learn. Such learning does occur but as DeCrow (6) has noted, much of it

> ...is happening unintentionally, largely unobserved, and without the slightest conscious direction. It is happening of necessity, almost as a reflex motion of a society grappling with social forces which are remoulding a nation to confront the challenges of a rapidly changing world.

But learning cannot be left to chance and without "... the slightest conscious direction." There is too much to be learned, too little time to learn it in, and too many distractions in the work-a-day world to ensure that the learning required will be achieved. In the past, such learning to keep abreast of new knowledge was thought to be an individual responsibility but few individuals accepted that responsibility so that the majority became obsolete and dysfunctional in a changing society. Consequently, it is becoming increasingly obvious that continuous learning is a responsibility that must be shared by both individuals and by society.

Some individuals and institutions have accepted this responsibility for continuing education more readily than have others and over a longer period of time. Adult Education has been an integral part of society for centuries but for the most part it has existed outside the institutional structure as an activity of individuals concerned about their own personal need for systematic learning opportunities or with a philanthropic concern for the needs of others. It is only within the past century that educational institutions have begun to accept a responsibility for continuing education but not yet to the extent that it helps shape the self-image of the institutional role and function in society. At the moment, adult education is still largely a marginal activity.

The several health professions are just now becoming aware of their role in and responsibility for the continuing education of their members. For the most part this has been forced on them and accepted with some reluctance through fear of losing control of their own destiny to other forces in society. In implementing this newer responsibility the health professions have not modified their traditional perceptions of learning

and education in light of new scientific knowledge about adult education so that their continuing education programs do not usually achieve the learning and changes in behavior necessary for improved patient care.

THE HEALTH PROFESSIONS

The scientific and socio-economic factors accentuating the need for continuing education in the health professions has been well documented in many health manpower reports (22, 21, 24, 19) and by numerous leaders in the health field (5, 15, 13, 3, 27). Research is producing new knowledge in the health field at an unrelenting pace. Science has made massive strides in the understanding, cure, and prevention of ill health so that life expectancy has been increased two-fold. At the same time, it has become increasingly apparent that new and better means must be found to hasten the application of new knowledge for the improvement of health care.

An increasingly informed public aware of new discoveries and demanding them has accentuated the need to hasten the spread and use of knowledge. Higher education and income levels, as well as expanded coverage by health insurance schemes is shifting the role of the consumer as 'patient' to that of 'buyer' thereby strengthening his position to demand more and better health services. A growing egalitarianism now views health care as a basic human right which should be readily available to all with equal quality.

In response to the changing nature of public expectations, universities and professional associations, joined by health service agencies and institutions, are attempting to prevent obsolescence by increasing their involvement in continuing education. Although some interest and activity in continuous learning has long been the concern of

some individual members of the health professions, it is only within the past decade that professional groups have concentrated their attention upon the provision of systematic educational opportunities for all in the professions.

In spite of this rapidly growing interest and concern it is everywhere apparent that continuing education is a responsibility not yet discharged satisfactorily or adequately at all levels (10, 12, 14, 19, 20). Moreover, as noted by Houle (11):

> ... even more disconcerting is the expression of a growing public hostility toward the several professions because of the alleged incompetence or self-satisfaction of their individual members, faults which better continuing professional education might have helped to prevent.

Although the case is not clear, the view is expressed widely that continuing education in the health sciences suffers from a lack of clear purpose, an absence of professional interest, and incompetence in the provision and conduct of educational activities. There is also widespread the impression that programs are ad hoc or piecemeal instead of continuing, and designed along the traditional lines of youth education rather than taking into account that the potential participants are adults.

Whatever the crux of the problem, the general consensus is that present programs have many shortcomings and that newer and more effective approaches must be found. Recent government reports recommending that "... professional associations explore the means whereby continuing education could be made a condition for practice ..." have added a new sense of urgency to the task (19, 21).

NEW DIRECTIONS

At present, programs for continuing education in the health professions are constructed largely on the model of academic pre-professional education which is controlled exclusively by subject matter and conducted primarily to disseminate information. This approach to learning stems from the prior educational experience of those planning the program as they generally lack sufficient knowledge about adult learning and instruction to do otherwise. Furthermore, as a result of their prior experience in pre-professional education, those for whom progams are planned resist educational activities that violate traditional conceptions regardless of their efficacy for learning. Since the traditional approach to education is not fulfilling the need, continuing education for health professionals must seek new directions.

In order to design new directions, it is necessary to examine existing activities in continuing education. This review, therefore, is a summary and analysis of the literature on continuing education in the health professions from 1960 to 1970 in order to provide a basis to seek new directions. By studying existing patterns of education for the professions it will be possible to avoid earlier mistakes and profit from prior experiences in designing functional educational programs.

CLARIFICATION OF TERMS

The term continuing education has been defined in various ways in the health sciences. Some definitions are broad and encompass all education following the completion of pre-professional programs in undergraduate study (1, 16). In other cases, the term is defined in a very restrictive sense to apply only to short refresher-type courses (9, 12).

Still others use the term as a synonym of adult education to include all learning activities which contribute to personal growth and development. In this sense, as noted by Cameron (2) "... the proportions of the task are formidable indeed".

As used in this review, continuing education includes any educational activity for health professionals "... through which opportunities for systematic learning are provided" (18). Thus, any planned learning experience is included in this term and these range from formal courses through conferences, conventions, institutes or workshops, to clinical traineeship so long as they are conducted for practising professionals and are systematic learning activities.

Instructional devices such as recordings, films, television, radio or programmed instruction are also included in this review where appropriate. For the most part such devices are used principally as information sources, to aid in self-instruction, or as ways of extending the range of an instructor to include widely dispersed participants.

The terms course and program are used interchangeably in this review and refer to those learning activities which are designed to achieve specific instructional objectives within a specified period of time. Thus, a program may consist of a single instructional event such as an evening meeting or a one day institute, or it may be a sequential series of events occurring regularly over a period of time (25).

The term method and technique are generally used interchangeably in the literature without specification. A method is a way of organizing the participants for the purpose of conducting a learning activity and may include correspondence study, classes, workshops, ward rounds, or clinical traineeships. A technique, on the other hand, identifies the

behaviours that occur in the instructional situation which are intended to help the participant learn and includes such things as the lecture, panel, symposium, discussion, demonstration and similar actions.

Learning is used here to identify the process through which an individual acquires a new capability that is a more or less permanent change in behaviour resulting from experience such as acquiring new information, a new skill or an attitude.

The term instruction is used to identify the action of an agent who designs and manages a learning activity in order to achieve greater success in learning.

LIMITATIONS

This review is primarily concerned with basic program development for continuing education in the health professions. Most of the literature reviewed has been descriptive in nature covering a single program or a survey of program activities. There has been very little done in the way of substantive research and such as is available often fails to satisfy the rigorous canons of social science so that there is little validity or reliability in the data or conclusions presented. Perhaps if it accomplishes no other useful purpose, this review may spur the several professions to engage in research that is functional in answering the many problems identified in the literature.

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CHAPTER II

THE PROFESSION AND CONTINUING EDUCATION

The individualistic nature of dental practice and its relative isolation from the mainstream of general health services has several important implications for the development of continuing education.

COMPOSITION AND DISTRIBUTION

Like physicians, dentists are not being produced in sufficient numbers to maintain what is considered by some to be an optimum ratio of dentists to population (56) (42). Despite efforts to expand dental school programs (56), population growth will continue to outstrip the production of dentists. In Canada, an equally pessimistic dentist-population ratio is projected for the years ahead (39). Population ratios do not necessarily reflect an accurate picture of the availability of dental services. Studies have shown that the use of dental auxiliaries can significantly increase the productivity of dentists. In both Canada and the United States, governments recommend that dental auxiliaries be trained to perform a greater range of duties than they are presently permitted to perform (42) (39).

Another important factor influencing the availability of dental services is the disproportionate distribution of dentists from region to region. As in medicine, the distribution of dentists in North America varies directly with the per capita income and the proportion of the population in urban communities.

Thus, in the United States the highest dentist-population ratios are found in the large urban communities of the North East and the least in the South (42). Similarly, in Canada the highest dentist population ratios exist in the large urban communities of British Columbia and Ontario and the least in Newfoundland (59).

Although specialization has occurred within the dental profession, only a small proportion of dentists are practising a specialty. McFarlane (59) reported that in 1962 only 3.8 percent of the dentists in North America were practising a recognized specialty. While there are no recent national figures, a survey in Ontario found that only 6 percent of the dentists were in specialty practice in 1968 (74). Moreover, a report in 1965 by the American College of Dentistry revealed that less than 10 percent of graduating dentists were going on to obtain graduate degrees or certification in one of the specialities of dentistry (68). Hence, while it is expected that specialization will increase appreciably in the future (66), it is not now a significant factor affecting the availability of dentists.

Practice Arrangements:

As in medicine, dentists also pool their facilities and personnel in order to meet the increasing demands on their services (59) (48). There is also some evidence that hospital dentistry is increasing (35) (48). Generally speaking, however, most dentists are still engaged in independent office practice (39) (43), and, as pointed out in the Report of the Committee on the Healing Arts, "Because they are so independent, dentists may find it relatively difficult to keep up with the development of dental techniques, and they may not be as exposed to the kinds of quality controls that physicians experience through hospital and other control institutions required for the treatment of their patients" (74).

Patterns of Work:

Hall (39) noted that about one third of the 216 dentists interviewed worked a 40 to 44 hour week. For the rest, there was a wide variation from a high of 55 to a low of 35 hours per week. Of the 155 general practitioners in the sample, 54 percent had at least one full time dental assistant while 69 percent of the 61 specialists had one or more full time assistants. Only 6 percent of the total sample made any use of dental hygienists and 46 percent of those not employing hygienists felt the idea was a good one but knew little about the occupation or were not at all enthusiastic about the re-organization that would be required to introduce one into the office.

The findings of the Ontario study (74) suggest that despite the growing importance of specialization and preventive oral medicine, most of the dentists' work is still "largely devoted to routine repair and replacement of decayed teeth, fitting dentures, and the treatment of common periodontal disease". According to this report, and implied in others (39) (59) (42), "The dental profession has not responded easily to changing public attitudes and needs, to new methods, or to the new ways of preparing dental personnel to provide these services".

Both from within and without the profession the proposal that continuing education be used as a vehicle for re-orienting dental personnel to overcome these deficiencies (72) is being advanced more and more frequently. More specifically, at a recent national workshop sponsored by the American College of Dentists (72) it was recommended:

1. That continuing education should not be limited to those subjects directly related to dentistry, but include areas that might have "spin off" benefits, e.g., sociologically oriented courses to provide better understanding of the needs, fears, and desires of the underprivileged, as well as patient groups which require special care in their treatment such as the chronically ill, aged, and handicapped.

2. That dental societies, schools, and other agencies develop continuing education programs in keeping with the preventive concept of practice, regardless of the student group for whom instruction is planned.

3. That dental schools implement programs which will provide training in the management and administration of the total dental health team for the undergraduate as well as the continuing education student.

While these recommendations capsule the major areas requiring attention in future programs, planning must also take into account the opinions of the consumers of continuing education. Hence, in recent years, a number of surveys have been conducted in an effort to identify dentists' perceptions of their learning needs.

NEED FOR CONTINUING EDUCATION

In dentistry the terms "graduate," "postgraduate," and "continuing" education have been defined by the Council on Dental Education of the American Dental Association (46) as follows:

> Graduate Education: refers to those programs which include a planned sequence of courses leading to an advanced degree, such as a Master of Science, the Master of Science in Dentistry, or the Doctor of Philosophy.
>
> Postgraduate Education: refers to those programs which include a planned sequence of courses and instruction that do not lead to an advanced degree, but for which the student may be awarded a certificate.
>
> Continuing Education: refers to those single courses of short duration (one or two days to several weeks on either a full time or intermittent basis), which are offered to provide practising dentists with information about new developments in dental technics and the science of practice.

Although these are the definitions generally endorsed by the dental profession, in practice the terms "continuing education" and "postgraduate education" are often used interchangeably resulting in considerable confusion.

In order to present this report according to the terminology used by the Council, programs of full time study intended "primarily to prepare dentists for specialty practice and/or for teaching in a clinical area" (66), were defined as postgraduate education and excluded from this review. On the other hand, since it appears to be common practice in dentistry to award certificates and/or credits for attendance at continuing education courses, "non-academic" credit courses were added to the foregoing Council's definition of continuing education and included in this review.

As a further clarification of terminology (12) it might be well to note that a continuation program in dental education includes the following:

> Seminars: A seminar is a group effort in study or research conducted under the leadership of one or more persons possessing special knowledge in the area of study.
>
> Study Clubs: A study club is an organized effort on the part of individuals to pool their knowledge and interest for the benefit of all participants. Study clubs may be of two kinds: 1) Where the objective is basically instructional, and 2) where the objective is basically investigative.
>
> Scientific Programs and Exhibits: Scientific programs are programs offered by organizations or institutions that offer lectures of discussions on various subjects of interest to the practitioners in an effort to keep the practitioners abreast of developments. Scientific exhibits offer further opportunity for this depending more on the visual aspects of the educational process.
>
> Extension Courses: Extension courses or programs offered by educational institutions are distinguished largely by the fact that they are made available outside the facilities of the school, such as a branch or by mail.
>
> Intramural Courses: Intramural courses or programs are those located in the universities' dental schools.

According to most writers, continuing dental education as presently constituted was a product of the second World War (57) (49) (55) (4). Up to that time there appears to have been few attempts to offer systematically any planned learning opportunities for dental practitioners. The return to

civilian life following World War II of a large number of dentists, coupled with the revolutionary advances in all the health sciences, forcibly demonstrated the need for specific programs for continuing dental education.

In response to these needs, the W.K. Kellogg Foundation provided financial assistance to dental schools for the development of refresher-type programs, thus bringing the universities' dental schools into the mainstream of continuing dental education. A conference on continuing education was held in 1948 by seven dental schools which had been recipients of Foundation grants, and this appears to have been the first of a number of national conferences and workshops which have been held subsequently to "study the problems related to the establishment and conducting of programs of continuing dental education" (55) (19) (91) (72).

However, as noted by Mann (55) in 1964:

> Many of the 1948 problems remain, and totally satisfactory answers or solutions to them have not yet been developed...To-day, and probably more important than fifteen years ago, consideration must be given to the questions of what properly constitutes a total program of continuing education for the dental profession. What are the acceptable methods of continuing education that are or should be available within reasonable distance or expense? What can a dentist do by himself with journals or teaching devices, and what can be done by television? Should a total program have organization or should it depend upon independent groups, agencies, and institutions to provide a sufficiently broad spectrum or potential experience to care for the profession's needs? If organization is desirable, who should administer it?

These questions are still major concerns in continuing dental education today. In dentistry, as in all the health professions, there has been much discussion about these problems but few scientific studies on the ways and means of providing continuing education for dentists.

Probably the most significant national study was that published in 1960 by the Council on Education of the American Dental Association (46). It

provided a comprehensive report on the changing nature of dental practice, and on the general status of dental education including continuing education. In 1964 the Committee on Advanced Education of the American Association of Dental Schools published the findings of a survey of dental school programs, faculty, and participants (hereinafter referred to as the 1963 Survey), which also provided considerable information regarding continuing dental education. A third national survey of note was that by the American Public Health Association (51) in 1964. This study sought to determine the general status of continuing education in dental public health, and more particularly, to identify the continuing education needs of dental personnel in public health services.

In addition to these, over the past few years there have been a number of regional surveys defining the expressed learning needs of dentists (63) (89) (1) (24) (65) (6), and a few pilot projects on extramural programs along with those using the newer educational media (27) (37) (32) (3). Generally speaking however, much of what has been written over the past decade have been opinions and viewpoints, particularly with reference to the main pre-occupation of the dental profession, "mandatory continuing education" (20) (25) (20) (30) (36).

CHAPTER III

PARTICIPATION IN CONTINUING EDUCATION

Although there is no accurate data available about participation in continuing dental education in general, there is some data that suggests factors which may affect participation including location, field, patterns of practice, income, age, and the uses of information sources. Most writers estimate that in any given year less than 25 percent of the dentists in the United States participate in continuing education programs (6) (29) (43) (88). Two national surveys provide estimates of 40 percent (63) and 49 percent (84) respectively, but local surveys tended to be less optimistic. A survey of 34 percent of the dentists in Kentucky (24) revealed that 26 percent had attended one continuing education course during 1967-1968, 32 percent had attended two or three courses during this period, 25 percent had attended four or more courses, while 27 percent reported no course attendance. On the other hand, a review of attendance records at the University of Kentucky revealed that over a seven year period, the average annual attendance in programs offered at the university equalled the oft quoted national average of 12 percent (6).

In Minnesota, a 1963 survey (64) based on approximately two-thirds of the practising dentists in that state disclosed that roughly 43 percent had taken at least one course in the past two years, while approximately 17 percent had not taken a course for ten or more years. Similarly, a recent survey conducted by the University of California found that of the 102 respondents, 77 percent had taken courses within the past two years (1).

These data suggest that participation in continuing dental education varies with the nature of the sample population surveyed, the course sponsorship, and other related factors.

Location:

It would appear that the geographical region in which the dentist practices is associated with participation in courses. It has been found that dentists in the United States living in the west and in the east are more likely to have taken courses than those in other regions (65) (84). But this can be misleading since the highest percentage of dentists within reasonable access to dental schools are those located in the western and eastern states. Roughly one half of the nation's dentists are practising in locationsrelatively remote from dental schools.

In general, most studies reveal that while dentists will travel long distances seeking desirable courses (41) (6), the majority prefer courses closer to home. The 1963 survey of dental school programs (65) found that 46.18 percent of the course participants had travelled no more than 100 miles.

Field of Practice:

Dentists in specialty practice have been found to take or to have taken more continuing education courses than those in general practice (89) (1). In the national study reported by O'Shea (65), 86 percent of the specialists reported having taken courses whereas only 60 percent of general practitioners had done so. Among the specialists, more orthodontists were found to have taken courses than those in other specialties. This study also revealed that dentists who engaged in teaching and/or research, were more likely to participate in continuing education than those who engaged only in practice.

Patterns of Practice:

Questionnaire responses from over 4000 dentists in the six New England States (89) revealed that dentists in partnership and/or located in a dental building, were more likely to have taken courses than those in solo practice or located in non-dental buildings.

On the other hand, O'Shea (65) found that neither practice arrangements nor office location were related to course attendance; however, 72 percent of the dentists with two or more auxiliary aides had taken courses as compared to 53 percent with no auxiliaries. In addition, 72 percent of the dentists who scored high on the use of preventive procedures had taken courses in contrast to only 54 percent scoring low on their use. A similar trend was also noted with respect to the variety of modern equipment in use, "The more such equipment the dentist had, the more likely he was to have taken courses and to have taken them recently."

Income, Age:

Several studies reveal that dentists in the higher income brackets are more likely to take courses (1) (89) (65). In the California study, 66 percent of the respondents earning $11,000 to $15,000 had taken courses compared with 80 percent in the $16,000 to $30,000 income bracket (1). Similarly, in New England 57 percent of the dentists whose income was in the $20,000 or more bracket reported course attendance versus 39 percent of those whose net income was less (89).

A national survey by the American Dental Association (84) found that dentists in the 30 to 50 age range were found to enroll in courses of continuing education while beyond 50 there was a steady decline in participation.

Use of Information Sources:

Unlike physicians who tend to rank formal courses first or second in order of importance, dentists tend to rate reading, meetings, conventions, study clubs, and informal contacts with colleagues higher (90) (89) (63) (64) (23) (67). An exception to this rank ordering was found in California (1) where respondents rated continuing education courses as the most important way of keeping up with new developments. While this survey was based on a sample of University of California alumni and may be biased, this difference may be the result of the fact that the State of California has been very active in the field of continuing dental education (1).

O'Shea (63) found that a greater proportion of respondents who rated formal courses as the most important method of keeping current were also more likely to have taken one or more courses. Moreover, he found that dentists who used other means of keeping up were also more likely to have taken refresher courses. Attendance at local, state, and regional meetings showed a lesser relationship to course attendance than did participation in study groups and membership in general and specialty dental societies.

While reading is heavily endorsed as a way of keeping up to date, the Minnesota survey (64) revealed that 63 percent of the responding dentists spent less than five hours a month reading dental journals. In contrast, attendance at study clubs and discussion groups was fairly high, with approximately two-thirds reporting attendance at 40 or more meetings in six months.

A recent survey by the American Dental Association (84) revealed that 36 percent of the dentists responding belonged to study clubs that met regularly. Of this number, dentists in the North West region reported the highest study club membership (44.3 percent) while dentists in the New England states reported the lowest membership (28.7) percent.

Surveys of dentists in Colorado and Wyoming revealed that society meetings and study clubs were most often used as sources of continuing education by dentists up to age 55. Thereafter, journals became more important. It was also found that young graduates tended to rate their own practices "a very important source of continuing education" (23).

Reasons for Attending or Not:

Data gleaned from surveys suggests that from 70 to 90 percent of the dentists are willing to participate in programs of continuing education (89) (23)(24). In California (1), 80 percent of the respondents stated that interest in the subject was the major factor motivating attendance, 73 percent listed the improvement of office practice and procedures, 23 percent indicated a professional obligation, 5 percent were motivated by membership in the Academy of General Dentistry, and 4 percent attended as a result of a suggestion from a colleague. In Kentucky (24), 86 percent of the respondents listed subject matter covered as the most important stimulus to course attendance, 39 percent were drawn by the reputation of the clinician instructor, 34 percent by course location, 17 percent by the time of year, and 13 percent were motivated by the low cost of the course.

On the other hand the most frequently cited deterrents to course attendance (not necessarily in order) are: lack of time, distance (89) (24) (1), costs (24), uninteresting topics (1), and no courses available (23).

Sponsors:

Dental schools sponsored the majority of courses attended by dental practitioners with dental societies ranking second (63) (24) (64). Commercial organizations, hospitals, clinics, and other miscellaneous groups accounted

for by a small percentage of the courses taken. On the other hand, dentists give first preference to courses sponsored by dental societies with dental schools rating second (23) (89), and a few indicate that they prefer small group sponsors such as study clubs (23).

Scheduling of Programs:

Dentists are more or less unanimous in their preference for courses scheduled on Wednesday (11) (47) (23) or week-ends (73) (23). The majority also express a preference for short courses lasting three days or less (11) (47) (23). A substantial number indicate that they would be willing to attend courses scheduled on an intermittent basis weekly or monthly over a period of time (24) (23) (47).

The choice of location for courses varies widely. The most frequently cited locations include: university dental schools; local hotels; local hospitals, or clinics; and community colleges (89) (23). In New England, dentists in states with a dental school (Massachusetts and Connecticut), cited the school as the most frequently chosen. location.

Tuition Fees:

The majority of dentists do not question tuition fees (47) (24). Cost is a deterrent more in terms of the loss of income and travel expenses than the fee in itself. One study found that 63 percent of the respondents felt that the cost of courses was about right, 25 percent thought they were too expensive, and 10 percent indicated that continuing education courses would be attractive even if the costs were slightly higher (24).

Felt Learning Needs:

Although varying somewhat in rank order, the course topics most frequently chosen by dentists in New England (89) reflect the subjects ranked highest

in most other surveys (73) (11) (23) (1) (63) (64). These include: crown and bridge, complete dentures, periodontics, operative dentistry, and practice administration. In addition, other topics cited frequently include: diagnosis and treatment of emergencies (73) (23), and the use of dental auxiliaries (73). In New England (89), dental public health, hospital dentistry, and the care of special problems were the least preferred topics.

The Kentucky study (24) solicited dentists' opinions with respect to course offerings and content for auxiliary personnel. This revealed that 64 percent would like courses offered for dental assistants, and 35 percent indicated that they would be interested in participating in courses with their assistants. The most important courses for dental assistants were felt to be: office management, chairside assisting, dental health education, and dental radiographic technicians, in that order. Courses which were felt to be most important for dental hygienists were: dental health education and the use of mechanical scaling devices. Preventive dentistry and fluorides in dentistry were given top priority for hygienists in one study (24).

Most of the program directors who responded in the Dental Public Health Survey (51) in 1964 indicated that the greatest training needs were in the areas of public health administration and health education. Local program directors also rated training in clinical procedures high in their list of priorities.

Instruction:

Dentists express a general preference for teaching techniques which facilitate personal contacts. In New England (89), the techniques most preferred were demonstration..63 percent; participation..58 percent; lectures..51 percent; and discussion..46 percent. Least preferred were non-personalized

methods such as television..18 percent, movies..13 percent; correspondence..4 percent, and teaching machines..3 percent. With the exception of television which ranked relatively high in interest value in several studies (23) (24), this list more or less reflects dentists' preferences with respect to instructional techniques.

The lack of familiarity with availability of educational media may be a significant factor in the low level of choice for the media. In the WICHE (Western Interstate Commission on Higher Education) survey (90), it was found that older dentists tended either to be unaware of the different sources of information or disinterested in those not available. Younger dentists on the other hand, were more aware of their need for a variety of different opportunities not available to them. The instructional processes not available but desired were: demonstration clinics..52.9 percent; television..51.7 percent; supervised clinical practice..50.8 percent; group discussion..47.2 percent; radio..42.8 percent; and lectures or symposia sponsored by local hospitals..42.6 percent.

Instructors:

In the Kentucky study (24), respondents were asked to evaluate university faculty members as instructors for continuing education courses. Forty-five percent of the respondents thought that university faculty did a better job of organizing and presenting material than did dental practitioners, but 55 percent thought that frequently faculty members were too academic in their approach, concentrating on research rather than practice matters. Some 16 percent thought that faculty were not as appealing as nationally recognized specialists.

CHAPTER IV

PROGRAM ADMINISTRATION AND ORGANIZATION

The nature and structure of dentistry as a profession coupled with the geographical distribution of its members has created problems that are barriers to the systematic development of continuing education in dentistry. Although these barriers are by no means insurmountable, they do account, in part, for the slow growth of continuing education in the profession.

ADMINISTRATION

Continuing education programs in dentistry are sponsored by dental schools, medical schools, general and specialty professional societies, hospitals, graduate dental institutes, affiliate member institutions of the American Association of Dental Schools, and by private groups of dentists in a locality. Of these, dental schools are the principal sponsors of formal courses. In 1970 (13) (14) (15), dental schools in the United States and Canada offered 1,095 courses, as compared with 340 courses recorded as offered by all other sponsoring agencies. Of dental school offerings, in 1970 eighty-eight courses were designed specifically for dental auxiliaries which represents a substantial increase from 1965, when only 19 courses were offered to auxiliary personnel (16) (17) (18).

Insofar as it can be determined from course listings, some 60 to 70 percent of the courses limit enrollment to 50 or less and have stipulated the use of participative teaching techniques in addition to demonstration and

lectures (13) (14) (15) (16) (17). In practice, however, it is reported that a high percentage of the courses use chiefly non-participative instructional techniques (10) (5) (45). In 1970, over 80 percent of the courses offered were of less than five days' duration and were designed for general practitioners. Tuition fees ranged from none to $700 for one twelve day course on Oral Rehabilitation. The most frequently offered courses were: Prosthodontics..252; Orthodontics...136; and Periodontics..98, with only 36 courses offered on Preventative Dentistry.

A survey (78) of over 200 continuing education programs in the State of Massachusetts in 1968 disclosed comparable findings. The majority of programs being offered were short term and heavily weighted towards clinical subjects. This study also found that 85 percent of all dental society meetings with an educational content were in the Greater Boston metropolitan area.

A 1963 survey (76) of 36 dental school programs revealed that the majority of courses being offered were located in the universities. These few schools reporting facilities other than campus locations listed local hotels, motels, and resort areas. A survey (51) of 46 dental schools in the United States and Canada disclosed that in 1965 only 8 schools offered 16 courses for dental public health personnel. Tuition for these ranged from none to $50, with little relationship between the amount of the fee and the length of the course. All courses were available to dentists and some to dental hygienists.

Administrative Arrangements:

The 1963 Survey (76) revealed that in many dental schools continuing education programs were organized on a rather informal basis. In 12 schools the responsibility for planning and implementation was delegated to the chairman

of the postgraduate division, while in 5 schools programs were directed by the dean of the dental school, with course implementation being delegated to an advisory committee or director of continuing education. In another 5 schools the assistant dean was also the director of continuing education. The remaining schools reported a part-time chairman who had additional teaching responsibilities in the undergraduate division of the school. In most cases, salaries for those in charge of the continuing education program came from the regular school budget, but in no case was a supplementary salary given to full or part time faculty participating in programs, although guest lecturers from elsewhere were paid an honoraria in most instances.

Although detailed information concerning the administrative arrangements in other sponsoring agencies were not available, in the 1960 Survey of Dentistry (46), 25 of the 38 state societies which responded felt that they did not have appropriate committees for co-ordinating or implementing programs in continuing education at the state, district, or local level. More recently there is some indication that dental societies are becoming increasingly involved in continuing education in conjunction with dental schools, departments of public health, and other sponsoring agencies (76). The general impression is that in most cases continuing dental education is individually sponsored (53) (34).

Instructors and Facilities:

Lack of suitable facilities and qualified instructors have been identified as two of the major problems in continuing dental education (46) (62), and the situation does not appear to be improving over time. Although there have been many articles advocating the use of hospitals, mobile classrooms, television, andother facilities which may make continuing education more readily accessible to practising dentists, their use has been limited (77) (52).

Both Harris (40) and Romano (77) revealed that with the exception of dental scoiety meetings, television has scarcely been used for continuing dental education. Similarly, except for several recent pilot projects in the use of programmed instruction and teaching machines, self-instructional and other educational devices have yet to be explored.

There are many reports of attempts to upgrade instructor qualifications through in-service training programs; however, it appears that the majority of these are inadequate (43) (92) (79). Shepro (80) investigated teacher education in dentistry and found that most graduate and postgraduate courses on teaching placed a major emphasis on dentistry rather than on the science of learning and instruction. He concluded: "It is necessary therefore, to educate more teacher teachers before adequate in-service courses can be established" (80).

Finances:

Most dental school programs are relatively self-supporting except for overhead expenses. In the 1963 Survey (76) only 4 of the reporting schools indicated that they were operating at a deficit, while 26 schools reported that they had surpluses from time to time. O'Shea and Black (63) believe that this heavy reliance on tuition to cover costs has contributed to the tendency in continuing dental education to "provide courses solely to accommodate what the dentist may want rather that what he may need."

This market economy approach to continuing education also accounts in some measure for the paucity of innovative programs in continuing dental education. In 1956, Levy (52) warned:

> We are aware of the fact that education rarely pays for itself; the author personally feels that even on a postgraduate level it should not. If the benefits to be derived from extension education are to be continued, however, the dental profession

> must realize that no one institution can afford to bear all the cost, and that the profession must take a greater responsibility for finding ways and means of sharing the cost.

In this respect, while the language of Public Law 89-239 in the United States, "permits and even urges indirectly that dentistry be included in the policy structure of the regional medical programs...since the inception of the regional medical programs there has been little formal inclusion of dentists in the programs and little project development by dental agencies" (33). Indeed, with the exception of several very recent pilot projects, the findings of this review suggest that neither governments nor voluntary agencies have played a significant role in facilitating the development of continuing dental education.

Publicity and Promotion:

Programs are publicized primarily through course listings published in the January, May, and September editions of the Journal of the American Dental Association. Monthly announcements providing more detailed information on coming educational events are also published in the "News on Dentistry" section of this journal. In addition, specialty journals, brochures, special pamphlets, word of mouth, and personal communications, are other commonly used methods of publicizing course offerings (83) (10).

To encourage dentists to attend courses, sponsors of programs also report the use of various incentive plans, including credits toward certificates or fee discounts varying proportionately with the number of course hours of instruction attended (76) (86) (58). The University of Pittsburgh School of Dentistry has formed a Post Graduate Scholars Association. On completion of 100 hours of instruction a dentist is considered a "member" and is entitled to a 20 percent reduction in tuition; after 300 hours he becomes a "scholar",

entitled to a 50 percent reduction in fees. These courses may also be used for credit in the Academy of General Dentistry, which requires regular participation in continuing education as a condition of membership.

Another interesting plan is offered by the St. Louis University School of Dentistry. To encourage the young dentist to continue his education, the dental school gives each new graduate five Certificates for Continuing Dental Education. The first entitles the dentist to a free course and the other four provide for half tuition. These certificates are valid for the first two calendar years after graduation (58). Some dental schools offer courses under a special dividend plan designed specifically for members of the Academy of General Dentistry (37).

PROGRAM PLANNING

Most of the programs for continuing dental education follow the traditional patterns encountered in all adult education. Program planning appears to rely heavily on participant opinionnaires. There are many descriptions of questionnaires used to ask participants what they liked or did not like about a course, or what they would like included in future courses. Other than one article by Barker (5) stressing the need for more clearly defined objectives, this search of the literature yielded no reports of attempts to identify real learning needs systematically, nor were any studies found which attempted to relate participation to actual changes or improvement in dental practice.

Darby and Weiss (22) refer to present course offerings as "an unorganized and unsystematic educational smorgasbord from which the individual dentist must choose what he thinks will be most useful to him". They note that relevant programs for continuing education must be directed towards a lifetime of learning consistent with three basic principles:

1. Comprehensive well organized and sequential programs.

2. Equal educational opportunities for all dentists...opportunities that are accessible, convenient, and continuously available.

3. Learning experiences that are compatible with sound learning theory and principles.

To fulfill these requirements, they call for the establishment of a national plan, much like that proposed in the Dryer Report (28) for the field of medicine. To achieve this long range goal they stress the need for coordinated action by all official and voluntary bodies concerned with continuing dental education. No pattern of co-ordination has yet been established that would be applicable everywhere, nor does it seem likely that such overall programming will be possible in the near future. Indeed, as noted by Furstman (34), "it has been impossible to co-ordinate all programs in any given state."

One step in this direction was reported recently by the Dental Society of the State of New York (9) which announced the establishment of a Bureau of Post Graduate Information which will compile and disseminate data on: 1) officially recognized teaching facilities and programs; and 2) current qualifications and postgraduate education of licensed dentists in the State of New York. This information should assist sponsors in eliminating duplication and it should ultimately facilitate in some measure the designing of programs for different levels of instruction.

From the few program descriptions found in the literature, the following examples illustrate the varied approaches which have been tried or are currently in use in continuing dental education.

Study Clubs:

Study clubs are a method of adult education unique to the field of dentistry. They began spontaneously as a systematic way for a small group of

dentists to provide for their own continuing education. Two characteristics of study clubs make them particularly effective: 1) the members are involved in planning their own education, and 2) as small informal primary groups they provide for member interaction and facilitate the use of instructional techniques with high learner participation (87). Many study clubs provide their own programs and instruction drawn from the membership of the group while in other cases they seek expert instruction from elsewhere.

The organizing concept of the study club is not new in adult education as comparable groups have existed for centuries for different purposes. Benjamin Franklin originated such a group in Philadelphia which became known as The Junto. In every case, then as now, the study group is a significant method for providing a functional opportunity for continuing education that meets the real needs of its participants.

In the Guide published by the American College of Dentists in 1958 (12), the number and location of many study clubs was reported, including thirty that met regularly in Seattle, Washington. Other regions reporting numerous study clubs were Southern California, Oregon, and the mid-west. In recent years, dental schools and societies are sponsoring and encouraging the formation of study clubs (7). The University of Oregon plans and operates programs for study clubs, including the selection of instructors, course descriptions, and fees as with its regular short courses. The members of a club define their own goals and plan definite programs for the year with university personnel. During recent years, twenty-two such clubs met at the university and two in a Vererans' Hospital (87).

At the University of Illinois, Massler (57) reports:

> ...study groups of 8 to 15 practitioners register at the start of each academic year and each group determines the course of study it desires to pursue. The groups meet either once a month for a full

academic year or once a week for a full academic quarter. Outstanding men are recruited to meet with the groups.

Pavone (68) describes the University of California study club program as:

> ...one of the most exciting developments in continuing education for the general practitioner...These school-operated groups participate in discussions, seminars, clinical investigation, review of literature and clinical evaluation of materials and procedures. They offer one of the greatest potentials for short-term advanced training that has been conceived.

Regional Programs:

The University of Oregon School of Dentistry has initiated a regional program which brings instruction to dentists throughout the state. Called Friday Special, classes are held one Friday afternoon of each month at six different regional centers. One dentist in each area serves as co-ordinator and confirms attendance as well as participating in organizing the program in other ways. Courses have been presented as seminars, but future plans include a clinical approach (60).

The University of Pittsburgh Dental School is conducting a similar but more extensive program in 15 regional centers distributed throughout the state and in surrounding states. College classrooms, private dental offices, hotel rooms and hospitals serve as teaching facilities. Teaching techniques include closed circuit television, demonstrations, and lectures. The number of dentists attending any given program is reported to vary from 8 to 35. Local representatives are invited to the university campus once a year to review the past year's program and to assist in planning for the coming year (38).

Since 1964, the dental staff of a rural hospital in Poughkeepsie, New York, has been affiliated with a metropolitan teaching hospital. During a

ten day educational program participants from the rural hospital spend a period of time observing and participating in selected specialty areas at the metropolitan hospital. Reciprocally, the staff of the urban hospital visit the rural hospital to participate in a one day and one evening symposium in the five county area served by the hospital. Subjectively, "it is felt that this affiliation is contributing to the individual's continuing professional education and is stimulating research motivation in the participant dentists who return to St. Francis Hospital to share their newly acquired skills and enthusiasm with non-participating dentists" (32).

Hospital Programs:

As hospital dentistry increases in importance, a number of sponsors are offering special hospital orientation programs for practising dentists. In 1969, the Pennsylvania Dental Association initiated a series of hospital training courses which were financed by the U.S. Public Health Service. Six courses of 10 to 12 trainees each were conducted in five Pennsylvania hospitals. Each course provided a minimum of 18 hours of instruction which included lectures and demonstrations on the use of drugs, laboratory tests, operating room procedures, and similar matters. Evaluation forms filled out by the participants indicated that the courses were helpful, and many felt that they should be longer (48).

The Glenwood Hills Hospital and the Easter Seal Society in Minnesota are also co-sponsoring a similar type of hospital orientation program. An evaluation of this two day program disclosed that dentists who had participated in the seminars were providing more hospital treatment for those patients requiring it (35).

Professional Meetings:

The American Dental Association's Annual Session is probably the most comprehensive continuing education program offered in dentistry. Extending over a number of days, its purpose is to keep practising dentists abreast of the latest developments in dentistry. The format includes panels, forums, symposia, individual essays, clinical lectures, table clinics, plus a variety of scientific exhibits. Attendance at these is reported to be 10,000 or more (75).

Television Programs:

With financial support from the W.K. Kellogg Foundation, the University of Illinois College of Dentistry is credited with the first use of closed circuit interstate television. This program, consisting of 4 weekly sessions, was accompanied by additional supplementary materials. As reported by Levy (52), this program was successful in every way except for the cost which was considered prohibitive.

According to Harris (40), the University of Pittsburgh School of Dentistry was the first to experiment with open circuit television in continuing dental education in 1960. This program consisted of 4 one hour dental clinics recorded on videotape and telecast on 4 consecutive Sunday evenings during off air time. Although the effectiveness of this program was considered favourable, George reports (38) that it was discontinued because of lack of funds.

In 1967 Ballantyne (3) reported a series of three weekly programs sponsored by the Oregon Dental Association, and telecast over open circuit television in Portland, Oregon. This program was designed expressly for dentists but was open to public viewing. A sampling of 45 dentists by questionnaire indicated that 44 percent thought the program was good, 31 percent

excellent, and the remainder fair to poor. In concluding his report, Ballantyne comments:

> Much of the success of television programs depends on the ability of those presenting the material to project themselves and command the attention and interest of the viewers. Drawing the clinicians from lay members of the dental association presents difficulties. The use of television requires that all concerned learn special skills and techniques to be effective.

Since 1968 Tufts University School of Dental Medicine has been conducting an open circuit television series called Boston Dental Reports, fashioned after the Boston Medical Reports. The programs are produced through the facilities of Boston's educational television station and distributed to educational television stations in New England by the Eastern Educational Network. Aided by support from the U.S. Public Health Services Division of Dental Health and The American Cancer Society, the pilot series consisted of three 30 minute colour programs which were made available later to dental groups and study clubs (85). According to Dale (21), program effectiveness will be assessed in a number of ways: 1) audience participation; 2) knowledge gain; 3) utilization of new materials, techniques, and equipment; and 4) changes in concepts of dental practice such as work simplification, preventive dental procedures in dental practice, patient education, or changes in referring patients to specialists. Also included in future plans are "the use of satellite dental teaching teams with accessible mobile or fixed dental units for demonstrations or participation using modern teaching aids for rural dentists who are too busy or reluctant to travel distances for assembled education".

Drinnan and Greene (27) report on consumer evaluation of an open circuit television series. Consisting of ten one-half hour programs, the series was broadcast from four upstate educational television stations associated with the New York Network and one

in New York City. Programs were announced in local dental Society journals, the press, and in television program guides. Of the 425 dentists responding to a questionnaire, only 205 or 48 percent of the respondents indicated that they had known about the programs. About 25 percent of these learned of the series through the newspaper, 25 percent through their dental society bulletin, and the rest by television program guides or by word of mouth from colleagues. Only 117 (58 percent) of those who knew about the series could receive the transmissions on their television receivers. Forty-five dentists indicated they had watched the first program, 42 watched the second, and 39 watched the third. Only four had watched all ten programs and 18 had seen only one. The main reason given by those not watching was the inconvenient broadcast time.

In discussing ways to improve motivation to participate in televized programs, the authors recommend: 1) that upon showing evidence of viewing the programs dentists be granted credits which could be applied toward continuing education requirements; 2) that dental societies or dental schools contemplating producing television programs seek the services of a professional consultant, a television director producer; and 3) that special efforts be made to publicize and acquaint potential viewers with details concerning the programs.

DiBaggio (26) reports that the launching of the largest state educational television network in Kentucky has resulted in a multidisciplinary approach to educational television for the health professions and the allied health groups. The co-sponsored series of televized programs called PANMED began in October, 1969. Although initially planned as a series of 15 programs, in which all the disciplines would be represented, the pressure of time resulted in the decision to use existing tapes and motion pictures for initial programs. In hopes that

the health professionals in each discipline would view the entire series, schedules of programs were sent to all health professionals in the state.

A questionnaire was used to evaluate the first four shows. Of the 303 dentists responding, 130 (42.99 percent) reported viewing part one and 105 (34.6 percent) part two. DiBaggio concludes:

> The results of the survey seem to support an earlier study of continuing education in Kentucky in which it was reported that 12 percent of the state's dentists attend continuing education courses. Apparently, this percentage cannot be appreciably increased by bringing the programs into the home (13 percent watched the television programs devoted to dentistry).

Correspondence: Programmed Instruction:

The United States Naval Dental Corps has been offering continuing education through correspondence study since 1957. This consists of general courses on dental specialties and shorter topical courses which are structured in a format similar to that used in programmed learning. The target audience includes reserve officers and those on active duty. During the first five year trial period Heck and Lackey (44) estimated an enrollment of 7,000 with an 89 percent completion rate.

The Division of Dental Health of the United States Public Health Service has been experimenting with pilot projects utilizing programmed instruction on individual and group teaching machines. At the Division's Dental Health Center in San Francisco a team of specialists prepare programmed materials for machine presentation. To date, thousands of dentists have taken these experimental courses which are not available on a wide variety of subjects (61).

For the past six years the Division of Periodontology of the University of California School of Dentistry has been using programmed instruction in its continuing education projects. Under a grant from the United States Public Health Service, it is developing self-instructional materials on Periodontology specifically designed for general practitioners (69).

Information Retrieval:

The Dental Training Center located in the Veteran's Administration Hospital in Washington, D.C., serves as a major resource center for the production and distribution of audiovisual materials. Using the facilities of the hospital, the center has been developing 8mm. single concept films in such specialized areas as Periodontology, oral surgery, prosthodontics, radiology, oral diagnosis, and patient education. By the end of 1968, it was estimated that over 75 cartridge films would be available to support the educational programs for veterans' administration dentists. It was also expected that the films would be made available for purchase by interested individuals and groups (81).

The Audio-Visual Library of the American Association of Orthodontists is currently offering over ninety different slide-tapes and 16mm. films on different dental subjects on a loan-rental basis. In 1967, more than 2,000 individual programs were distributed to orthodontist departments at dental schools all over the world. Presently the Audio-Visual Committee is "investigating the use of photograph book-tape programs for individual use, use of cassette tapes, and other possible ways of expanding the value and use of the Audio-Visual Library" (50).

The American Dental Association Library, or Bureau of Library and Indexing Service (BLIS) located in Chicago, provides a two week loan service to association members anywhere in the country. In 1968, 10,268 books, journals, micro-films, and package libraries were reported in circulation. Another important part of the Bureau's function is the indexing of dental journals, and more particularly, its production of the Index to Dental Literature, in

co-operation with the National Library of Medicine (71).

CURRENT AND RECURRING ISSUES AND TRENDS

The most significant development in continuing dental education over the past decade has been the increased demand for a change in state dental laws which would make participation in continuing education a requirement for practice. At least four states, including New York, Kentucky, Oregon and Pennsylvania, have made participation in continuing education mandatory. California, Minnesota, Missouri, and New Mexico are proposing changes in the law that would also make continuing education mandatory (25).

The issue remains highly controversial. Since the precedent set by the New York State Health Department's Title XIX of the Social Security Act, which "prescribes the standards of continuing education which dentists must meet in order to participate in the Medacaid program" (2), movement in this direction seems inevitable. Reasons for and against mandatory continuing education were summarized at a recent conference sponsored by the Philadelphia County Dental Society (54). In brief, arguments in favour were as follows:

> Tax supported health care programs are with increasing frequency requiring evidence of the competency of the professionals who will render the service. Hence if the profession does not set the standard and provide the mechanisms, for ensuring competence, government agencies will.
>
> The general impression is that many dentists are not keeping their knowledge up to date.
>
> The trend is in the direction of more rigid requirements in all segments of the profession, and this trend will probably be carried into the field of continuing education.
>
> The quality of dental services would improve and the image of dentistry will be enhanced in the eyes of the public.

Conversely, arguments against mandatory continuing education include:

> Continuing education is the responsibility of the individual dentist and the profession as a whole. More carefully planned quality education would provide the incentive for individual dentists to participate.
>
> Compulsion of any kind that would tend to coerce a group into forced education processes might result in an attitude of rebellion that would not be conducive to meaningful learning. Attendance of continuing education does not mean necessarily that the knowledge gained will be applied in practice.
>
> Self motivated learning is more likely to lead to a thorough and conscientious performance of service.
>
> There is actually no positive proof with regards to how much continuing education dentists engage in. This is particularly true with regards to how much a dentist reads on his own, how many scientific meetings he attends, or how often he improves his knowledge through consultation with colleagues.

In its 1968 Annual Report (83) the Council on Dental Education of the American Dental Association issued the following statement:

> The Council feels strongly that the final determination of the requirements and procedures to be utilized by agencies of the dental profession to promote and assure continued competence must be the responsibility of state societies and dental examining boards. It should be the prerogative of the boards and constituent societies to determine the amount of continuing education that should be expected of the practitioners in their states. It should be their prerogative to decide whether continuing education should be required for licensure renewal...

In this respect, a recent survey of state boards of dental examiners disclosed that more than two-thirds of the 43 responding boards felt that continuing education should be voluntary and expressed reluctance to pass legislation to make it compulsory. Most boards indicated that continuing education for dentists was not too successful. As one respondent put it:

> I feel that AADE should encourage continuing education, but there is a problem of good programs and facilities. If the programs are really good and offer what practitioners need you will not have to pass laws and require dentists to attend. Too many dental meetings offer the same old lectures and speeches that have been given over and over for years (38).

DiBaggio (25) suggests that a "realistic solution would be to teach the dentist to self-learn," but adds ruefully, "measurement of how well he

does, presents certain problems".

In continuing dental education, needs and problems are by far more evident than progressive trends. Nevertheless, according to Weclew (88):

> The ideas emerging about continuing education for the general practitioner seem to be taking the following pattern:
>
> Every effort should be made and every means explored to motivate the practitioner to participate in continuing education.
>
> Relicensure should be regulated by the profession itself.
>
> A program and curriculum that would raise the level of all of dentistry should be developed:
>
> 1. Refresher courses should be planned to interest all dental graduates and should include a review of basic dental concepts and a resume of the newer concepts.
> 2. More sophisticated courses should be offered to those who have had the preliminary courses.
> 3. A program of continuing education of yearly courses to be attended throughout the dentist's entire professional career should be planned.
> 4. A postgraduate course that will lead to a certificate and diplomate in general dentistry should be developed, with the length of time to be extended so that the dentist can practice while attending school.

CHAPTER V

SUMMARY

Continuing education in dentistry has not developed as extensively nor over as long a period of time as has occurred in other health professions. This is due, in part, to the individualistic nature of the profession and to its relative isolation from the mainstream of the general health services.

Surveys indicate that while there is a shortage of dentists in North America, there is also a problem of maldistribution and ineffective utilization of available dental manpower. Furthermore, the traditional framework within which dental practice is organized serves as a barrier to innovation and change. Accordingly, the proposal is being advanced increasingly that continuing education must stress: 1) new practice methods, such as group practice or the use of auxiliary personnel; 2) greater social responsibility including care of special problems and preventive dentistry; and 3) greater integration of the biological sciences.

On the other hand, practising dentists are requesting short two to three day courses on "bread and butter topics which will be of immediate benefit to them" (38). There is some evidence that some dental practitioners feel that university faculty are not skilled in translating research into terms meaningful to clinical practice.

PARTICIPATION

The participation patterns of dentists are not materially different from those in the other health sciences. The two major deterrents to participation in continuing education programs are a lack of time and distance. While

a lack of time is questioned by many (10) (31) (49), the geographical dispersion of dentists, both with respect to their practice and with reference to the location of dental schools, suggests a need for decentralized programs. In addition, since many dentists indicate a lack of familiarity with the newer educational media which could help to make education more convenient, there should be greater use of these in continuing dental education.

ADMINISTRATION AND ORGANIZATION

In terms of faculty, finances, and facilities, continuing education is given a secondary place in dentistry. There is also considerable evidence to suggest that many sponsors are providing courses solely to accommodate what the dentist may want, rather than what he may need. This appears to be related to two problems: 1) the heavy dependence on tuition fees to finance programs; and 2) the difficulties inherent in precisely defining educational needs.

Other major inadequacies identified in this review include: 1) the almost complete absence of program evaluation; 2) the lack of imaginative, innovative program models; and 3) the pressing need for decentralized programs which would make continuing education more readily accessible to practising dentists. Moreover, if an impact is to be made on the preventive and social aspects of dentistry, ongoing integrated programs are required. This calls for much greater co-operation among the various agencies presently offering programs.

Despite these and many other shortcomings, it would seem that the increasing trend toward making continuing education a condition for practice, has had some positive effects on the development of the field. Foremost it has forced the professional associations, dental colleges, and other agencies responsible for stemming the tide of professional obsolescence to search for new methods and approaches to the process of continuing education.

CHAPTER VI

EPILOGUE

Continuing education in the four major health professions has become a matter of growing concern that somewhat belatedly follows the need to keep abreast of expanding knowledge and the demand for better health care. Among these four professions studied, medicine is far in the lead with respect to the quantity of educational activities available to the members of that profession. It is followed in turn by nursing, dentistry, and pharmacy in that order. Each of these fields has approached continuing education differently with respect to the acceptance of the need for education, the resources committed to it, and the kinds of learning activities provided.

In none of the professions is there evidence of a real commitment to continuous learning by its members nor is there any substantial evidence of a real understanding of the educational process. The activities made available tend to be too few in number to meet the need, too poorly distributed to be generally available, and too poorly planned and conducted to insure that learning does in fact occur. Medicine has consistently committed proportionately more resources to continuing education than has the other health professions but nursing appears to be sensitive to the educational process as it applies to continuing education programs. Furthermore, there has been little research in any health profession to find the extent to which existing programs affect the practice of the members of the profession.

PARTICIPATION

Studies of participation in continuing education activities indicate that the members of the several professions are not deeply committed to learning to maintain their professional knowledge and skill. Participation rates vary among the four professions and within each. The variation within a profession appears to be related to the degree of specialization of the members. On the whole, the rate of participation falls short of that considered essential by the leadership of the professions.

Individual participation in continuing education is a matter of the attitude and motivation of the individual as well as the relevancy of the programs available.

Attitudes

The formal school experiences of adults develop attitudes about learning that tended to become a barrier to participation in continuing education. The normal pattern of schooling is designed to terminate at various points commensurate with an individual's life goals and vocational expectations. As a result, individuals do not recognize or accept the idea that education must continue throughout life in order to maintain some reasonable adjustment with a rapidly changing world.

The health professions reinforce and in fact, accentuate this terminal concept of education by the ways in which the professions are structured. Admission to the profession is the terminal point in education for many members although those with higher expectations may set new terminal points in certain specializations or for specific positions in the profession. Thus, the attitude that education is terminal

is reinforced to the point where it mitigates against participation in education continuously.

The prevelance of this concept of education has plagued adult education as Kidd notes:

> This terminal concept has long stood in opposition to the more creative idea that education is inherently an 'open-ended' process which can never be definitely complete as long as life lasts; and that wherever on the ladder one's schooling may have 'terminated', there still remains an as yet unused capacity for mental and spiritual growth. The need and the capacity for education not only continues throughout life but actually increases as the individual matures, provided that the capacity to learn is persistently exercised.

Prior school experiences have also tended to develop rigid and restrictive attitudes about the nature and form of education and learning. From elementary school through university, education has been structured in set patterns of courses, classes, and subjects in which the learner has been involved only passively with emphasis in the acquisition of information. Consequently, activities are rejected if they fall outside the range of traditional school experiences, because individuals have not learned how to learn. Both those who plan programs for continuing education as well as potential participants are inhibited by these restrictive concepts about education.

Motivation

The motivation to participate is frequently governed by the achievement goals of an individual. The structure of the professions tends to restrict or reduce the motivation to participate so that only those motivated by personal satisfaction are apt to participate in further education after they have reached their terminal educational objective.

The growing interest in limited licensure in the health

professions is thought to be an incentive for increased participation in continuing education. This does little more than set recurrent terminal points that will undoubtedly motivate individuals to participate in programs. Thus, while it may increase attendance, limited licensure cannot automatically produce the learning that will lead to improved practice.

An individual may be motivated to attend a continuing education program because of limited licensure, but the motivation to engage in learning will develop only if the individual feels the need to learn and experiences the satisfaction resulting from successful learning. Thus, the participation in education essential to improved practice will occur only through good learning experiences.

Relevancy

Participation is influenced by an individual's perception of his need for learning so that he will be more apt to attend those activities that appear to be related to his needs and interests. The achievement of relevancy is, therefore, crucial but it is inhibited by the fact that few individuals are capable of identifying their need for learning accurately in functional terms.

In order to insure relevancy it is necessary to develop procedures for assessing the need for learning. The health professions have not yet discovered satisfactory ways of determining needs. Attempts to do so through self-assessment inventories succeed in helping to identify information deficiencies but this is not necessarily the real learning needs. Such inventories operate on the assumption that knowing leads automatically to doing but this is the most persistent fallacy in education. Thus, the identification of information deficiencies does

5. Learning is the same regardless of the material to be learned.
6. The same instructional processes are appropriate for all learning tasks and all learners.
7. Learning does not involve the active participation of the learner.

These and other similar myths about learning have inhibited the effective development of continuing education. Their interference is most noticeable with respect to the planning of educational programs and the management of instruction.

Planning

The four major health professions discussed here have shown some creativity in developing educational activities suited to their particular populations but these have been more the exception than the norm. Most of the programs reported in the literature have adhered to the traditional patterns characteristic of schooling and the specific objectives are rarely identified. Whether stated specifically or not, the objectives have been almost exclusively related to the acquisition of information. It is apparent that there is little awareness of the importance of identifying objectives as the first step in program planning. Consequently, most of the programs reported attempted to cover too much material in the time available, were not directed toward a clearly identified end, and could not be evaluated meaningfully. Only by establishing precise and uncomplicated objectives is it possible to plan useful programs, select content, choose appropriate instructional techniques, and measure the achievement of learning.

Instruction

Nearly all of the programs discussed in the literature used instructional processes that are effective primarily for the diffusion of information with the lecture being the most frequently used technique. None of the reports indicated any awareness of the desirability of selecting instructional techniques to fit the program objectives and the material to be learned. Furthermore, there was no indication that program instructors did more than act as instruments for the diffusion of information.

To accomplish learning effectively and efficiently it is necessary to manage learning which consists of a sequence of events which the learner must be guided through and provided knowledge of the results of his efforts. This guidance of learning is the responsibility of the instructor who must have knowledge of the conditions affecting learning and the ability to plan the sequence of events through which learning occurs. This management function appears to be one of the weakest aspects of continuing education in the health professions.

RESEARCH

Most of the published material about continuing education in the health professions is exhortative. None of the professions have produced any substantial body of research useful in developing this aspect of the profession. Medicine has produced the largest volume of literature and pharmacy the least.

Although each profession has certain unique characteristics that make it necessary to conduct specific research, there is much that is common to all of the health professions and to all adult education.

Because of this, interprofessional research into continuing education would be more economical as well as beneficial to all of the professions. There is little evidence in the literature to indicate that the professions know or have used relevant research about adult learning and instruction that has been produced outside the profession. Greater use of such existing research would enable each profession to concentrate on its own unique questions.

Most of the research literature is descriptive in that it reports programs and procedures used in providing opportunities for continuing education for a particular population. This is most useful for the general spread of innovative program ideas but it contributes little to the advancement of knowledge. Such reports can be enhanced by more complete information about objectives, instruction, the characteristics of the population, and similar data to permit an analysis of the program and the results achieved.

The survey method has been predominant in the studies reviewed. In most cases, this has suffered from inadequate sampling procedures and controls along with incomplete data processing. As a result, the findings are not necessarily valid or reliable, consequently the basic data needed to plan and conduct continuing education activities for the several professions is not yet available.

Very little analytical research that tests relevant hypotheses or seeks to answer crucial questions has been done. As this kind of research increases it will accelerate the accumulation of substantive knowledge about continuing education in the several health professions.

CODA

Although this review of the literature indicates that there is little room for complacency about continuing education in the several health professions, it does show clearly a rapidly growing interest in and concern for the quality and extent of educational opportunities. The design and conduct of educational activities for adults is it elf a specialized body of knowledge and skill comparable to that in any of the health professions discussed here. It is unusual indeed to find individuals equally equipped for a health profession and for adult education. That this must eventually come to pass is inevitable. Thus, the initiation of improvements in continuing education for the health professions must begin with the development of personnel within each profession for whom adult education is an area of specialization equal to those now generally recognized and accepted by the professions.

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